

**Notice of Allowability**

Application No.

10/575,563

Examiner

Hugh Jones

Applicant(s)

LANDIS JR ET AL.

Art Unit

2128

**- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/11/2010.
2. ☒ The allowed claim(s) is/are 1, 3-20, 22, 24-25, 43-44, 46.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 3/11/2010
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

### DETAILED ACTION

1. Claims 1, 3-20, 22, 24-25, 26-38, 43-44, 46 remain pending. Claims 1, 3-20, 22, 24-25, 43-44, 46 are allowed; claims 26-38 are canceled by Examiner's Amendment.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a phone interview with Nathan O. Jensen on 3/11/2010.
4. The application has been amended as follows:

1) Claims: **Cancel claims 26-38.**

2) Specification:

Page 4 (first line, par. 14):

Insert --s--- after "Figure";

Replace [1] with --**1A-1D**--

Delete the last [s] from "illustrates"

(should read as: **Figures 1A-1D illustrate**)

Page 15 (second line, par. 73):

Insert --s--- after "Figure";

Replace [1] with --**1A-1D**--

Delete the last [s] from "illustrates"

(again, should read as: **Figures 1A-1D illustrate**)

***Allowable Subject Matter***

5. Claims 1, 3-20, 22, 24-25, 43-44, 46 are allowed.
6. The following is an examiner's statement of reasons for allowance:
7. The claims are novel and non-obvious over the art of record. Claim 1 requires:

1. (currently amended) A method of evaluating a reservoir, comprising:  
providing a three dimensional reservoir framework having a plurality of cells,  
assigning one or more constant reservoir property values to some or all of the cells to  
provide a first three dimensional reservoir model;  
on a computer, performing a flow simulation on the first three dimensional reservoir  
model;  
making an assessment of the reservoir using the first three dimensional reservoir  
model;  
when it is determined that the first three dimensional reservoir model is to be updated,  
updating the first three dimensional reservoir model by populating some or all of the cells  
with one or more variable reservoir property values to provide a second three dimensional  
reservoir model;  
on a computer, performing a flow simulation on the second three dimensional  
reservoir model;  
making an assessment of the reservoir using the second three dimensional reservoir  
model;  
comparing the assessment of the reservoir made using the first three dimensional  
reservoir model with the assessment of the reservoir made using the second three dimensional  
reservoir model;  
when it is determined that the second three dimensional model is to be updated,  
updating the second three dimensional reservoir model by populating some or all of the cells  
with one or more rock type fraction, porosity and permeability reservoir property values  
derived from seismic data to provide a third three dimensional reservoir model;  
on a computer, performing a flow simulation on the third three dimensional reservoir  
model;  
making an assessment of the reservoir using the third three dimensional reservoir  
model;

comparing the assessment of the reservoir made using the second three dimensional reservoir model with the assessment of the reservoir made using the third three dimensional reservoir model;

when it is determined that the third three dimensional model is to be updated, updating the third three dimensional reservoir model by populating some or all of the cells with net-to-gross values directly derived from seismic data to provide a fourth three dimensional reservoir model;

on a computer, performing a flow simulation on the fourth three dimensional reservoir model;

making an assessment of the reservoir using the fourth three dimensional reservoir model;

comparing the assessment of the reservoir made using the third three dimensional reservoir model with the assessment of the reservoir made using the fourth three dimensional reservoir model; and

when it is determined that the fourth three dimensional model is to be updated, updating the fourth three dimensional reservoir model by populating some or all of the cells with net-to-gross values directly derived from production data to provide a fifth three dimensional reservoir model.

The basic idea of updating grids, in the given context, is well known. One example is disclosed by Le Ra Valec-Dupin et al. (US Patent 7,363,163. Note the patent doesn't qualify as prior art; however, it is representative of the state of the art). Valec-Dupin discloses updating grids (abstract. Also, see col. 1 describing the state of the art):

A method for updating a geological reservoir model by integration of dynamic data having application, for example, to petroleum reservoir development. An initial map (y) of petrophysical properties is constructed by means of a geostatistical simulator and of static data. Then an initial set of gradual pilot points and at least one complementary set of gradual pilot points are constructed. A combined set of gradual pilot points is then constructed by combining these sets of gradual pilot points

according to the gradual deformation method wherein at least one deformation parameter is a characteristic parameter of said pilot points (position and/or value). The initial map (y) is then modified, the deformation parameters are modified according to the dynamic data and the procedure is repeated until a stop criterion is reached and the geological reservoir model is updated by associating the map thus optimized with the grid of the model.

However, Valec-Dupin (or similar art) does not anticipate or reasonably suggest the specific sequence of steps, and more importantly, the particular way in which they are carried out. In one example, different types of data are integrated (instant claim 1 – see the ‘updating’ limitations) for each different, subsequent updating (and new resultant grid). The combination of specific steps and the particulars of the steps render the claims novel and non-obvious over the prior art of record.

8. Process claims 1, 3-20, 22, 24-25, 43-44, 46 were analyzed under 35 USC 101. It is recognized that, in order to be statutory, a process claim must be 1) tied to a particular machine or apparatus, or 2) it transforms a particular article into a different state or thing. *In re Bilski*, 88 USPQ2d 1385 (2008). It is also recognized that a general purpose computer may be converted into a particular computer through the operation of software on the computer. *In re Alappat*, 31 USPQ2d 1545 (1994). For the instant invention, it is clear that the process must be carried out via software operating on a computer. Independent claim 1 requires at least a computer processor. As such, the process is tied to a particular machine and meets the *Bilski* test.
9. The 112 rejections are withdrawn in view of the amendment.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hugh Jones whose telephone number is (571) 272-3781. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hugh Jones/  
Primary Examiner, Art Unit 2128